

## Engineering Notice: ZFx86 Specification Changes

This application note describes the differences in specifications between the ZFx86BGA388 devices produced for ZF Micro Solutions by National Semiconductor and the new devices available as of June 1, 2006 produced for ZF Micro Solutions by IBM Microelectronics.

### DEVICE MARKING

NSC produced devices had the following marking: 3100-0200-01 B1 or 3100-0200-01 A5

IBM produced devices have the following marking: 3100-0200-03 C0

### CPU PERFORMANCE

Initial units of the IBM produced devices will be available at 100 MHz CPU clock speeds.

(NSC produced versions were: Industrial temp 100MHz; Commercial temp 128MHz)

### VOLTAGE

**NOTE: IF YOU WILL BE TESTING THE ZFx86 PRODUCED AFTER MARCH 2006 ON A PRE-2006 DESIGN THE CORE VOLTAGE MUST BE CHANGED TO THE SETTING BELOW!**

The Vdd-Core voltage specification is:

Minimum	2.15V
Nominal	2.20V
Maximum	2.25V

(NSC produced versions were also dual voltage devices: 3.3V I/O, 2.25V core voltage at 100MHz and 2.7V core voltage at 128MHz)

### MECHANICAL / ENVIRONMENTAL

Commercial Temperature - Up to 100MHz (0C to +70C case temperature)

Industrial Temperature - Up to 100Hz (-40C to +85C case temperature)

Package: 388-pin Plastic Ball Grid Array, 35mm x 35mm, fully RoHS compliant

(NSC produced versions were non RoHS compliant)

### SOFTWARE

An updated version of the ZTAG .bin file for loading the Phoenix BIOS is required for applications using AMD Flash however there is no change to the BIOS, just this particular loader module.

Please contact [support@zfmicro.com](mailto:support@zfmicro.com) with "NEW Z-TAG" in the subject line and you will be sent the new file.

Note: When you flash the BIOS using the dongle there are two software components inside of the dongle; the loader program and the BIOS image. You will now use a new version of the loader program but the same BIOS image.

### POWERING THE REAL TIME CLOCK

It is necessary to include a diode 'OR' network for powering the real time clock. This arrangement is depicted in the existing ZF Micro Solutions IDS development system schematic (available on our website).

### Z-TAG INTERFACE LIMITATIONS

The implementation of the Z-TAG interface on some ZFx86 processors does not meet the full specification and may not perform reliably. A workaround to allow serial programming of on-board flash is available on the ZF website at:

[http://www.zflinux.com/pdf/zfms-en-0002\\_11082006.pdf](http://www.zflinux.com/pdf/zfms-en-0002_11082006.pdf)

**Note:** Some ZFx86 processors will be available with the Z-Tag feature fully functional but may be subject to longer lead times. Contact factory for availability. ZFx86 chips with limited Z-Tag functionality will carry an "NZ" marking.